

### **REMARKS**

The Examiner states that the pending rejections are on new grounds of rejection. The Examiner further states that the term “affixed within the channel” in relation to the nanoparticle aggregates has been interpreted broadly to mean “two nanoparticles being affixed or attached to each other within a channel, a nanoparticle being affixed to a surface of a channel via a linker or a nanoparticle being attached to a label or sample that is affixed within a channel.” See page 2, lines 3-6, from the bottom of the Action.

#### **Claim Interpretation**

To clarify the meaning of “affixed within the channel,” claim 26 now recites “wherein the plurality of cross-linked nanoparticles aggregates affixed within the second channel are packed and stationary within the second channel.” This amendment is supported by the disclosure on page 7, lines 5-9, page 26, lines 1-3, and Figure 1, which clearly shows that the plurality of cross-linked nanoparticles aggregates affixed within the second channel are packed and stationary within the second channel. In short, even though nanoparticles may be attached to each other within a channel, affixed to a surface of a channel via a linker or attached to a label or sample, the definition of “affixed within the channel is that “the plurality of cross-linked nanoparticles aggregates affixed within the second channel are packed and stationary within the second channel.”

#### **Claim Rejections - 35 U.S.C. §102(e)**

Claims 26, 27 and 29-34 were rejected as being anticipated by Su. This rejection is respectfully traversed.

Even though the Examiner states that the pending rejections are on new grounds of rejection, Applicants respectfully submit that this is not exactly correct. Claims 26, 27 and 29-30 were previously rejected as being anticipated by Su in the Action of September 20, 2005. Subsequently, in the Amendment of December 9, 2005, Applicants amended claim 26 by reciting “nanoparticle aggregates affixed within the second channel” and the Examiner withdrew the anticipation rejection over Su, stating the following in paragraph 1 of the Action of April 21, 2006:

“Any rejection not reiterated in this action has been withdrawn as being obviated by the amendment of the claims.”

It appears that the Examiner's has re-instated the anticipation rejection over Su applying a broad meaning of the term “nanoparticle aggregates affixed within the second channel.” However, as claim 26 has been amended to recite “wherein the plurality of cross-linked nanoparticles aggregates affixed within the second channel are packed and stationary within the second channel” the anticipation rejection over Su should now be withdrawn.

Respectfully, review of Su demonstrates that the apparatus therein reciting the use of nanoparticles, irrespective of whether nanoparticles are aggregated, require nanoparticles to *traverse* a flow-through cell for detection of nucleic acids (e.g., Examples 2 and 3, at pages 10 and 11 of the '240 application). Because Su does not teach nanoparticles or nanoparticle aggregates fixed within a channel, wherein the plurality of cross-linked nanoparticles aggregates affixed within the second channel are *packed and stationary* within the second channel, the reference cannot teach an apparatus comprising nanoparticle aggregates fixed within a channel. Particularly, nanoparticles that traverse through the flow-through cell cannot be within the scope of the term “packed and stationary within the second channel. Thus, Su does not anticipate the instant amended claims. For these reasons, Applicants respectfully request that the rejection as applied against amended claims 26, 27 and 29-34, be withdrawn.

#### **Claim Rejections - 35 U.S.C. §102(e)**

Claims 26-34 were rejected as being obvious over Shipwash in view of Shipway. This rejection is respectfully traversed.

The Office Action states, in pertinent part, that Shipwash teaches the elements as recited in the claims as filed, including a multiplicity of nanoparticles packed in the second channel (citing Fig. 14, paragraphs [0066], [0167], [0174], [0425], and Example 15). Further, the Action states that the apparatus of Shipwash is allegedly capable of detecting single nucleotides, citing paragraphs [0254] and [0255] for support.

Regarding the packed nanoparticles, Fig. 14 of Shipwash shows that particles are *not* packed and stationary in a second channel. In fact, paragraph [0425] (which is included in Example 15) states that the components *flow past a detector*, those components being the beads/nanoparticles and bound-sample. If the particles flow past the detector they cannot at the same time be packed and stationary within a channel. The other paragraphs recited in the Action do not teach packed nanoparticles as alleged: i.e., [0066], describes nanoparticles and that reactions are carried out on the surface of such nanoparticles; [0167], provides a generalized discussion of microfluidics and microsystem fabrication; and [0174], discusses amino acid detection. In short, Shipway fails to teach or suggest the limitation “wherein the plurality of cross-linked nanoparticles aggregates affixed within the second channel are packed and stationary within the second channel” Furthermore, Shipway is also silent with respect to nanoparticle aggregates affixed within a channel, wherein the plurality of cross-linked nanoparticles aggregates affixed within the second channel are packed and stationary within the second channel, as the amended claims presently recite. In light of the amendment of claim 26, the obviousness rejection should be withdrawn as Shipwash and Shipway do not teach or suggest this invention *as a whole*.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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